MARCH/APRIL '85

VOL 1 NO 3

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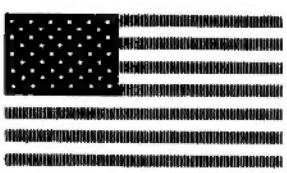
US funds

FOR THE T/S 2068 AND ALL OTHER
TIMEX AND SINCLAIR COMPUTERS

Time Designs

MAGAZINE

T/S COMPUTING IN AMERICA



...AND CANADA TOO!

TS 2068 DISC SYSTEM

FD-68 INTERFACE

Controls 1-4 drives

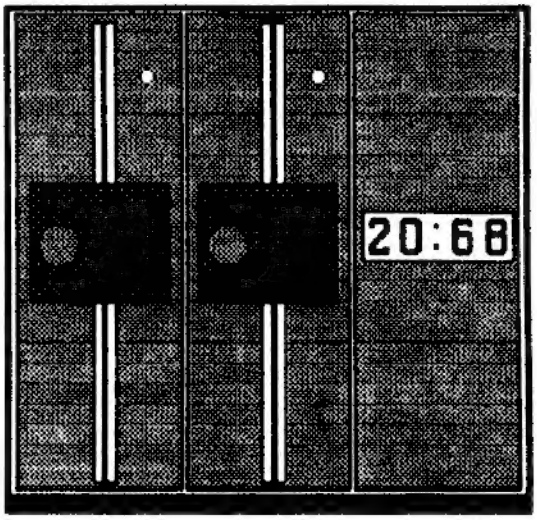
3-8 inch Shugart Comp.

Single or double sided

40/80 tracks per side

64K RAM & 8K ROM on board

RGB monitor output



SYSTEM COMPONENTS

$199 FD-68 Interface

$99 Drive 40T/DS/DD 5 inch/400 kilobyte

$99 Dual Drive Cabinet and 5 amp Pwr Pack

$3 Per Item S&H

Texas Residents add 5%

VISA/MasterCasrd add 5%

THE TIME HAS COME

Enhance the performance of your TS 2068 with the AERCO Disc System. All of the speed and convienience of a full-out floppy disc system. Load programs at an incredibly fast 250,000 bits/sec. Fully compatible with all Shugart type drives, including those already in use with the AERCO 1000 Disc System. The 64K of on-board RAM can be used as a second bank of system memory or a soon to be released full-blown CP/M System (version 2.2). The power supply is a 5-amp high efficiency switcher. We offer a variety of other hardware for all models of SINCLAIR-TIMEX.

	TS/2068	TS/1000
Floppy Disc Interface	$199	$179
Disc Drives	from 99	from 99
Power Supplies	99	99
Centronics Printer I/O	69	99
Dual RS-232C Serial I/O	99	99
Direct Video Mod (DV-1)	n/a	15
C ITOH 8510 Printer	375	375
ROM Bd. with Auto Disc Boot	n/a	59
RGB Cable (specify monitor)	30	n/a
CP/M (V. 2.2)	coming soon	n/a

AERCO

ACME ELECTRIC ROBOT CO

Box 18093 Austin TX 78760
Ph (512) 451-5874

Time Designs MAGAZINE

MARCH/APRIL '85
VOL I NO 3

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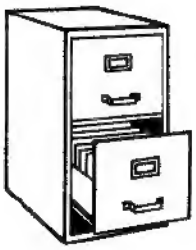

Editor's Corner

"Time flies", everyone says. I think they are absolutely right! Here we are, with issue number 3, and all of our staff at Time Designs can breathe one big unison sigh. It's another big issue...and out to you our readers on time. (I understand that a few of our friendly "competitor" magazines are drastically behind their deadlines now... some two to three months!?!) We will continue to be prompt as we possibly can, in getting an issue out to you every two months, just as we originally promised.

Speaking of the other Timex/Sinclair publications (one that isn't late), I personally spoke with the Editor of "Syncware News" recently. He is none other than Thomas Bent of Columbia, Maryland. I incorrectly stated in issue number two that Tom Woods was the editor, when actually Mr. Woods is the publisher. With that behind, I would like to say that Tom Bent is doing a good job with a magazine that caters to "electronic and technical applications of TS Computers", with lots of info on the ZX81, for all of you ZX/TS fans (also some 2068 stuff).

I want to thank all of our readers who sent letters and comments to us over the past few months. I tried to answer most of them personally (except for just recently when we were all busy cutting and pasting together the magazine...I will eventually get to them all). From the sound of the correspondence that we have received, I would say that we are on the right track! You told us that Time Designs is the type of magazine that you want to have for your Timex/Sinclair. For just a few comments...I want to explain why your magazine comes to you packed in a Manila envelope. You might ask, "isn't that a little expensive?" (some readers did ask). Let me say this. It is worth every penney. Our actual cost per envelope is less than ½¢. Many times, I have received a favorite magazine in the mail, when to my dismay, the cover was mutilated. I just don't trust the postal service. As long as we can afford it, you will receive your magazine in "perfect" condition...as fresh as if it just rolled off the press.

Sometimes in past issues, we mentioned an upcoming feature that will appear in the next issue. Generally,at the time they are being written or are still on the drawing board. We mention them, to give you an idea of what to expect from the next issue. We have not always provided. However, the features that we did include in their place were pretty nice. We try to at least include the majority of the ones we mentioned. If you are looking for a particular one, have patience...it is eventually coming. We will try not to make "empty promises".

Finally, please check out our expanded "Shopping Mart" section for this issue. There are a lot of great products and services for your micro, and at very fair prices too. With our present situation, our only means of obtaining quality merchandise for our TS Computers is by mail order (unless you are fortunate enough to live close to one of our celebrated vendors). Mail order shopping is not that bad at all. It's very convenient, and most of our advertisers ship within 24 hours. Think of our "Shopping Mart" section as a "shop-at-home experience". Please write to our advertisers for their catalogs, and when writing for info or making a purchase, please mention that you heard about it from Time Designs Magazine. I would really appreciate that very much.

Things are really looking up! Until next time...keep on computing the "Sinclair way".

Tim Woods/Editor

BITS AND PIECES

AERCO FD-68 DISK DRIVE INTERFACE

The new Aerco FD-68 Disk Drive Interface system is available now. It is priced at $199 (interface alone), and will allow the user to select any Shugart drive, or even less expensive ones...single or double-sided density, 3 to 8 inch models, for their TS 2068 Computer. Aerco also has available a compatible drive for $99 (optional double drive cabinent with 5 amp power pack is also $99). The FD-68 interface sports 64k RAM and 8k ROM onboard with bank-switching, and a RGB monitor output. The system will control up to four drives. In about a month, Aerco will be supporting their disk system with CP/M Software; the 2.2, which is the Kaypro/Osborne version. For further details or ordering ino, contact Aerco, Box 18093, Austin, TX, 78760, or phone (512) 451-5874.

Time Designs Magazine is currently making arrangements to do complete first-hand reviews of most of the mass storage devices that are mentioned in this issue. Watch for them in the future!

A & J MODEL 2000 STRINGY FLOPPY

A & J Micro Drive, 1050 "I" East Duane Ave., Sunnyvale, CA, 94086, has recently released their Model 2000 Stringy Floppy System for the TS 2068. The Micro Drive unit and interface connect to the computer via and 18 inch bable. The drives use a very small continuous loop tape cartridge called a "Micro Wafer". The wafers are available in varying lengths from 10 feet to 62 feet, with the 62' storing up to 85k and reportedly loadable in 73 seconds. The Micro Drive uses familiar SAVE and LOAD commands, along with a flag symbol "@", and a file number corresponding to the order of programs on the wafer. Power for the unit is taken directly from the TS 2068s rear port (no extra transformer to clutter your work area). Housed in a compact and sturdy case, the Micro Drive System also has the capability of a Centronics-type interface, with an optional EPROM and cable. The Model 2000 Stringy Floppy is priced at $199.50 plus $6.50 for shipping. This includes the interface, one drive, the users manual, 5 Micro Wafers, and a wafer organizer. A second drive can be purchased for a reduced price. The Model 2000 is also available from several other TS Vendors.

RAMEX OFFERS MILLENNIA K DISK INTERFACE/PACKAGE

Ramex International, is marketing a disk drive operating system for the Timex/Sinclair 2068 called SP-DOS, which is reported to outperform comperable units from Commodore, Apple, and IBM. The SP-DOS system is contained in the Millennia K disk interface with it's optional drive #1. Ramex claims that it loads 32k per second, stores up to 820k per disk, and occupies only 4k RAM. It uses all of the Timex cassette and microdrive commands, and other drives may be substituted for (or used with) drive #1.

Scott Duncan, of Ramex, told Time Designs Magazine that (in regard to other available drive systems for the Timex), "it has two times the storage capacity, and two times the transfer rate...and it supports up to four drives." He also told us that, "we support sequential file access with the Millennia K. You can have an 800k unsegmented file. (The interface) is manufactured in Frazier, Michigan. it was originally designed to run on the Spectrum, and that model is receiving rave reviews right now in England."

Scott mentioned that the software supplied with the Millenia K interface is on a quad-density disk. "Drive number one in the package deal is presently an MPI," he told us. As to availability? "Millenia K is available right now, although all of our first production has been sold out. We should have more stock in two weeks," Duncan reported.

The Millennia K interface alone is priced at $200. The package which includes interface, drive #1, case, P/S, and cables...sells for $450 (plus $5 for shipping and handling). for the time present, orders are on a first come, first served basis. Ramex is also supporting the interface with profession disk software including: Tasword II, Masterfile, Omnicalc II, and some programming languages.

Ramex International, Ltd., 48945 Van Dyke Road, Utica, Michigan, 48087. Phone (313) 463-1795, or for credit card orders, use (313) 731-2163.

TELECOMMUNICATIONS

Barry Carter, PO Box 614, Warren, Michigan, 48090, is offering a 30 page manual for the Westridge MTERM II Software. It is entitled "T/S Smart Terminal Telecommunications". The manual is priced at $5.00.

Anchor Automation, the manufacturer of the Westridge 2050 Modem, and the MTERM II Software, have an addendum to their MTERM II Manual. You can get a copy by calling (818) 997-7758, and requesting the up-date.

Mountaineer Software, 115 N 7th Ave., Paden City, WV, 26159, has several goodies for T/S Telecommunications. Either they are already available, or are presently in the works. This includes: "Letteriter/Bufferiter", a utility program to be used in conjunction with MTERM II, also a version of MTERM II for the TS 1000, and a small-scale BBBS program for T/S computers.

Glen D.(Dave) Clifford reported that there are two very active Timex-related BBS in the Los Angeles area. They are the "Average Remote Bulletin Board System" (213) 325-0213, and "The Unknown BBS" (213) 329-4603. He also reported that there are six other BBS in L.A. that have interesting items for Timex Users.

ZX81

In Britain, die hard ZX81 fans are displeased with the declining support they are receiving for their machines. For months now, hardware and software has been slowly disappearing from store shelves, as retailers complain of poor sales. Although the ZX81 is in for some rough times, there is still plenty of support and info in print. This includes a multitude of books, and at least five magazines that devote some space each month.

One bright spot is a company that has recently released two high-res graphics arcade games for the ZX81... Software Farm, 155 Whitwladies Road, Clifton, Bristol, BS8 2RF, England. The screen displays are nearly identical to similar games for the ZX Spectrum. "Forty Niner", Software Farm's first high-res program has been very successful, followed by the latest release "Rocket Man", a platform-style game. There are also additional hi-res programs forth-coming in the months ahead, including an alien-zapping game called "Z-Xtricator". These new high-resolution titles are the result of some pretty fancy programming techniques. We may be seeing more of this type of program in the future. Some Vendors have begun stocking the Software Farm line here in the U.S. for the TS 1000.

KNIGHTED COMPUTERS OBTAIN QUICKSILVA SOFTWARE RIGHTS

In our last issue, we reported that Quicksilva, Inc. of San Antonio, Texas, the British software vendor, was going to sell their licensing rights for their TS 2068 programs. Well, the deal has been struck with Knighted Computers of Fulton, New York, who has not only acquired the licensing rights for the eight previously marketed Quicksilva programs for the TS 2068, but also 13 additional titles never before released in the U.S. for this computer.

Ray Payne, of Knighted Computers, told Time Designs Magazine, that the new titles included: Trader, Lazer Zone, Snowman, Aquaplane, Velnor's Lair, Gridrunner (like Centepede), Trax, Ghostown, Island, Lost, Star Fire, Robber, and Quetzalcotal (which Ray says is a fantastic game). He also told us that these programs aren't just copies of Spectrum programs... but genuine TS 2068 versions, with several of them featuring joystick control (like Aquaplane). You also won't need a Spectrum Emulator to run them.

Meanwhile, Quicksilva will continue to offer their programs for the 48k ZX Spectrum. Either direct from them, or from a dealer. For information on the TS 2068 programs, write to: Knighted Computers, 707 Highland St., Fulton, NY, 13069.

NEW BUYERS GUIDE FROM D. LIPINSKI S/W

"D. Lipinski Software Buyers Guide To Sinclair-Timex Products And Services" is available now. The guide contains over 800 software titles, 100 book titles, 100 hardware items and numerous services including publication lists for all Sinclair and Timex Computers. Over 1000 possible suppliers were invited to supply descriptions of their products or services. The first 120 suppliers to answer are included in the initial release, and others are expected to be in the update (no additional charge for the first update). The guide is set in a three ring hard binder with an index. Price: $20.00 ppd. in U.S. and Canada.

MISC.

Ace Software, 2 East Oak Ave., Moorestown, NJ, 08057, has two financial programs: "Payoff" and "Payout", for the TS 1000/1500 and also for the TS 2068. The programs are $14.95 each (on cassette with instructions). Specify which computer when ordering.

Pleasantrees Programming, PO Box 2034, Mesa, AZ, 85204, has a new catalog packed with new items for the TS 2068, including software, floppy drives and interface. Write for your free copy, by sending a legal size S.A.S.E. Pleasantrees has a program that can be merged with JRC Software's "Compass Compiler/Assembler" (reviewed in Jan/Feb issue of T.D.M.). It is entitled "Complement", and adds some new commands and functions to "Compass". Both programs are offered together as a package for $27.95.

Macshak Software, 73-312 Ironwood St., Palm Desert, CA, 92260, has released two new programs for the TS 2068 on cassette. They are "Casino Keno", the ticket casino game, and "Investcalc", a personal finance management program. Price: $19.95 each (plus $2.00 postage and handling).

A National T/S Users Club? That is what T.S. Services, PO Box 15214, Red Bank, TN, 37415-0214, is offering with their "National T.S. Users Network". For $30 a year, you will receive a monthly newsletter, a guidebook of T/S products with occaisonal updates, and 10% discount on products (software, books and supplies) ordered from T.S. Services. Ideal for T/S Users who do not have access to an established user group.

Executive Workshop, 7420 SE Woodstock, Portland, OR, 97206, is having a contest. From now until Jan 1, 1986, for each copy of their "Straits Of Hormuz" game that is sold, $1.00 will go into a pot. The highest verified score achieved by Jan 1, 1986 will get the whole pot. In case of a tie, the award will go to the earliest entry. "Straits Of Hormuz" is priced at $19.95 (on cassette), for the TS 2068. It is a "thinking" type game (reviewed in the Jan/Feb issue of T.D.M.). Get your copy from the address above, and get scoring!

Doug Dewey of "Enter Lengua", 206 James St., Carrboro, NC, 27510, has just completed the designing of a Tasman compatible RGB/SOUND IN/OUT Interface board. Along with the RGB output, you can also access all of the tone generator outputs and route them to an external amplifier. Write to Doug for prices and availability.

Zebra Systems Inc., 78-06 Jamaica Ave., Woodhaven, NY, 11421, are offering a Graphics Tablet for the TS 2068. It is a complete package including the tablet (manufactured by Koala), interface and cassette software. The system is priced at $119.95 plus $3.00 for shipping. Included is a 32 page owners manual and a 90-day limited warranty.

Jerryco Inc., 601 Linden Place, Evanston, Illinois, 60202, is selling off the back-stock of TI 994/A complete keyboard assemblies for $5.75 each. Some TS applications may be possible. Write for availability.

Timex of Portugal has released a disk drive system for the Sinclair Spectrum. The system is called "FDD" and uses the small 3" size disks. It also includes two RS232 ports, is capable of using a memory card and running CP/M Software...with its own Z80 processor on board. Right now, the Timex (yes, the infamous computer/wrist watch company that we all know so very well) system is available in England for approx. 255. We have spoken to a Timex|Sinclair Vendor here in the States, that is currently negotiating a possible exclusive distribution here in the U.S. (with an interface for the TS 2068). More details later.

For additional news on Spectrum/2068 items, please see our "Spectrumwares" section in this issue.

LATE BREAKING NEWS

Thomas B. Woods' manual for the Pro/File 2068 is here! And what a manual it is! (Over a year in the making.) Great job Tom, very nice appearance, information-packed, with 143 pages. The Pro/File 2068 data organizer software and manual is available for $29.95 from PO Box 64, Jefferson, NH, 03583. Time Designs Magazine will have a complete review of the program and manual in the May/June 85 issue.

Mary Reinman of Sinclair Research (U.S. Operations), Boston, MA, reported that a decision has been made not to bring the Spectrum Plus to the U.S. Also, no word yet on the QL...it was hinted that there possibly could be some substantial news of it, by our next issue. We will see.

TIMEX MEETS DAVE HIGGINBOTTOM

WHAT WILL THE END RESULT BE???

by Tim Woods

Dave Higginbottom is no ordinary 35 year old Southern California body shop owner. Early last year, he took on an enormous challenge...to try and buy the computer manufacturing and marketing rights from Timex. A personal project that has been both time consuming and financially draining.

The Higginbottom story has been circulating around for some time now in the Timex/Sinclair Users circles, and printed in just about every newsletter. It has given TS Users (especially 2068 owners) a remote sense of hope for the future. When I talked to Dave on the phone recently, he told me, "when I first proposed my plan, I had hoped to keep the interest in TS Computers alive (after the Timex announcement)...and if this turns out to be the only result, I'll feel that it's been worth it."

High level business dealings are in no way a new setting for Dave Higginbottom. A few years ago, he and a couple associates formed Magnum Industries, for the purpose of developing and marketing an original electric car design. Dave, dressed in a three-piece suit, aggressively tried to sell the idea to financers and potential customers. This same fervor, is still very evident today, in the Timex dealings.

As a devoted father, Dave Higginbottom bought his first computer with his family in mind. It was a Timex Sinclair 1000 that he found for $35 at a local department store. After some reluctance about the machines usefulness, and some self-experimentation, he eventually came to the conclusion that, "I liked it!" Later, when the first TS 2068 reached the market, he went out and bought one of those also. Some ideas began clicking in his mind, and soon he had worked up some plans of selling a system package featuring the 2068 as the basis of it. This was almost an extension of the old Magnum Industries days. This is also where Dave came into contact with the less-than-optimum marketing structure of the Timex Computer Corp. Like the time he tried to obtain some computers from the Timex sales rep., and found that the same computer was available for much less from a local discount store. He had just lined up a deal with an organization in Los Angeles, to buy quite a few of the TS 2068 systems, when the bad news from Timex was aired. He then had to go back to his customers and tell them, "you know those computers that you really liked? Well, they just quit making them."

Then it began. Mostly out of curiosity. Dave called up Timex, and asked them, "who was going to take over the marketing rights to their computers?" They replied, "no one." Dave then told them that he was interested in obtaining the rights. Timex responded by asking, "are you sure you want to do that Dave?" At this point, he was sure. From here, he went on to form a small legal corporation called Trinity Magnum. He contacted some 57 Timex/Sinclair third-party vendors that had stuck it out, and asked for a pledge in support of his proposal. He devised a very detailed plan on how he would sell the computers. Then he went back to Timex with his Research and information.

I asked Dave in our phone conversation, if at any time, Timex appeared to be sorry for departing from the computer market? (I guess half-heartedly hoping to hear that they were tearfully repentant.) Dave told me, "yes and no. There was one (un-named) person that told me...that if I had only brought my information on support and marketing plans to them a couple of weeks before the announcement, they probably would have reconsidered...but they had also lost a few dollars over their computers."

Perhaps the most interesting part of the Higginbottom story, is the flair in which Dave will approach the market with his computers, when and if he does finalize a deal with Timex. You probably thought what Timex had planned for the TS 2068 was appealing. But wait until you hear what Dave Higginbottom has in store.

First, a network of franchise-style, owner-operated retail outlets, would be established called "Little Computer Stores." Each store owner would have certain voting privileges in Trinity Magnum, and would in fact be a form of a partnership. Dave told me that he currently has 100 individuals that want "Little Computer Stores."

Then the Timex/Sinclair 2068 would be re-named the TimeStar 2068. "The TimeStar would be our companies

over-all generic computer," Dave said. "Actually, there will be four different models, all based on the 2068." One of the other models would be an entry level business computer called the "TimePro." It is proposed to have a professional keyboard with a total of 96 keys, including 15 function keys. "A semi-colon would be where it is supposed to be," reported Dave. The TimePro, along with all four models will use the extended Sinclair Basic that is very familiar to TS 2068 Users, and the one-touch keyword entry system.

Along with the TimeStar computer line, each "Little Computer Store" would feature a variety of hardware and software support. "What would you think of 2,000 to 3,000 software titles in each store?" Dave asked. He went on to tell me that each store would be specially liscensed to procure the software, and reproduce it in the store, on several different formats, including disk, cassette, waffer, or ROM cartridge. This would greatly reduce the cost of maintaining a large volume of stock on hand. Also sophisticated programming languages like Forth, C, and Pascal would be offered on ROM pack Cartridges. CP/M Software is also slated for a cartridge.

Dave also asked me, "how would you like to be able to run all of Commodore's software on the TimeStar?...It's possible with an interface and using Commodore's disk drive and disk software. There is a company right now that has an interface that allows you to do this with the 2068." He also added, "most people are afraid to buy a computer because it might become obsolete. With what we are proposing for the TimeStar...it will be known as the timeless little computer."

At the last report, Dave told me that negotiations with Timex were still "hot." There was a tentative closing date of December 31, but that has been extended somewhat. The obvious obstacle for Dave Higginbottom, is coming up with the capital, and that amounts to nearly 22 million! This includes the possible acquisition of a floppy disk drive company in California, along with it's Singapore manufacturing facility.

Dave has a lending group going over the financing at present, and has prepared a 200 page document detailing his plans to support his loan request. He has gathered together an entourage of personnel to assist him with the project. "I've brought together some of the best experts in all the areas (lawyers, programmers, engineers, marketing specialists, ect.)," Dave told me.

I asked Dave, if anyone has ever called him "mad"? He replied by saying, "crazy is probably the better word. I get used to that... I will say this though. No one has ever been able to spend more than ten minutes with me (discussing the proposals)...and shoot my ideas down. I'm not afraid of pot shots." And Dave is right. I must confess, that I had previously had some predetermined skepticism, but after spending well over and hour on the phone with him, listening to all the details...he soon had even me believing. I guess it must be Dave's enthusiasm and sincerety. I could tell that he has related his ideas perhaps several hundred times. It would take several more magazine pages to mention everything that he told me about his dealings with Timex.

Finally I asked Dave, what he would like to see occur in the next few weeks ahead? He replied by saying, "I want to get my loan!" We at Time Designs Magazine hope you do so Dave. But whatever the end result may be, we wish you the best of luck. We also have to say "thank you" for sticking up for all the dedicated Timex/Sinclair enthusiasts out there.

micro muse

FORE AND NEXT

by: P. Bingham

"Personal Computers?" It seemed far-fetched.
We viewed in awe technology's stretch.
ENTER THE DEALERS: (with mottos iced)
"Computing Power...but at a price."

Our british uncle balked and said,
"Z-X-eighty for you instead."
Computers by mail? "They must be hexed!"
Our Z-X-eighty-one was next.

Like hot cakes running low on syrup,
Timex climbed up in the stirrups.
"We'll sell two million, maybe more!"
1000s sold in every store.

The market bucked, the market kicked.
"After this licking will Timex tick?"
And can the Spectrum reach the gate?
Is it?...It is!...'the Sixty-eight."

Sales were brisk, though still in hiding.
(Timex continued right on sliding.)
TI's door-slam made us swallow.
"Where might we be left to wallow?"

Tomorrow brought unwelcome news:
"You've just contracted the Timex Blues.
Sync is sunk, the rumors riz,
I wonder where the info is?"

Amid the flurry ensigns rise....
"We're not alone; we've still some ties!"
Unshelved 'sixty-eights were humming.
Software titles were slowly coming.

Along came someone who made a "switch"
and saved yet more from being ditched.
Wizard disciples of uncle Clive's
unveiled the latest: REAL-LIVE-DRIVES!

Indeed not dead, not even dying,
our proud crowd keeps skyward flying.
And shepherd Clive asks of his sheep,
"Are you now ready for Quantum Leap?"

(Thanks to Paul Bingham of Pleasantrees Programming for sharing one of his many talents with us.)

1st ANNUAL NORTH AMERICAN TIMEX/SINCLAIR USERS GROUP DIRECTORY

Welcome to our First Annual T/S Users Group Directory. We know that we probably have not inluded every group that does exist...but we did try. While compiling the list, we double checked to see that the groups mentioned are still around. If you do not see your group in our listing...don't feel bad, just send us the information, and we will print it in a future issue as an up-date. Hope this listing will help bring some new users in contact with your group.

ARIZONA

Sinclair Users Group of Phoenix
821 N. Marshall Ave.
Phoenix, AZ. 85013
contact: Moosa Marfia

CALIFORNIA

Bakersfield Timex Users Group
2617 Anza St.
Bakersfield, CA. 93305-3109
contact: Don Stewart

East Bay 280 User Group
654 40th Street
Richmond, CA. 94805
contact: Joel Brody

Peninsula Users Group
263 Gateway No. 107
Pacifica, CA. 94044
contact: George Mockridge

Silicon Valley Sinclair/Timex
Users Group
P.O. Box 4133
Santa Clara, CA. 95054- 0133
contact: Rita Carr

San Diego Timex/Sinclair
Users Group
809 Oaklawn Ave.
Chula Vista, CA. 92011
contact: George Luhrs

Sacramento Timex/Sinclair
Users Group
3655 Sunset Blvd. #42
Rocklin, CA. 95677

South Bay Computer Club
2316 Walnut Ave.
Manhattan Beach, CA 90266
contact: John W. Peterson

West Los Angeles ZX81 Users Group
P.O. Box 34545
Los Angeles, CA 90034
contact: Dr. George Kuby

Timex ZX80 Users Group
1624 Loughborough
Merced , CA 95340

ZX81/TS 1000 Users
P.O. Box 2411
Vista, CA 92083

COLORADO

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P.O. Box 523
Owego, NY 13827
Contact: Gary Ennis

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Carrboro, NC 27510
contact: Doug Dewey

Timex Users Group
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2629 Ridge Ave.
Dayton, OH 45414

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Portsmouth, OH 45662

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Cincinnati, OH 45218
contact: Rick Jhonson

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Users Group
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Portland, Ore. 97213
contact: Kevin Fowler

PENNSYLVANIA

Central Penn. Timex/Sinclair
Users Group
RD 1, Box 539
Centre Hall, PA 16828
contact: Bill Russell

RHODE ISLAND

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Newport, RI 02840
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Vimont Laval Users
125 DePiemont 2
Vimont Laval
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95 Wayne Ave
Scarborough, Ontario
Canada M1R 1Y6

FOR THE TIMEX/SINCLAIR 2068

Entering and Recalling Text in Machine Code

By Dennis Jurries

This subroutine will allow the user to enter up to 277 characters into machine code and recover them at will. The routine consists of four parts. The first part is the machine code loader program.

```
 10 FOR x=55501 TO 55533
 20 READ z  POKE x,z
 30 NEXT x
 40 DATA 62,0,205,48,18,225,70,
35,229,33,183,215,126,35,254,128
,56,250,16,248,126,35,254,128,20
0,215,24,248,201,205,205,215,1,2
01
```

RUN the above program then DELETE it. The second part consists of six lines that allow the text you input into machine code, to be recovered.

```
 10 FOR x=1 TO z
 20 POKE 55533,x
 30 RANDOMIZE USR 55530
 40 PAUSE 0
 50 NEXT x
 60 STOP
```

The third part of the routine allows the user to put text into machine code. Once the user puts the text in and tests it, then this part may be deleted.

```
 100 LET z=1  LET j=55224  LET a
$=""
 110 PRINT "Input text (limit 32
characters  if you want to print
text on the 24th line only).  Pr
ess enter  when finished with t
ext."
 120 PRINT
 130 GO SUB 300
 140 INPUT a$
 150 IF LEN a$>=55500-j THEN PRI
NT AT 0,0 "Text too long.  Input
text."  CLS  LET j=j-LEN a$  LE
T z=z-1  GO TO 110
 160 FOR i=1 TO LEN a$
 170 POKE j, CODE a$(i)
 180 IF j<55500 AND i=LEN a$ THE
N POKE j+1,128
 190 IF j<55500 AND i=LEN a$ THE
N LET j=j+1
 200 IF j<55500 THEN LET j=j+1
 210 NEXT i
 220 LET z=z+1
 230 GO SUB 400
 240 LET z=z-1
 250 STOP
 300 PRINT "TEXT #";z,"  ";277
-LEN a$;" characters remaining."
 310 RETURN
 400 PRINT
 410 PRINT "More text? (y/n)"
 420 PAUSE 0
 430 IF INKEY$="y" OR INKEY$="Y"
THEN CLS  GO TO 110
 440 RETURN
```

The above is set up to print on the 24th line. Several different messages can be run if you add a line, 45 CLS. If you wish to print text from the top of the page, then POKE 55502,2. To change back to the 24th line, POKE 55502,0.

The following is the OP CODE for the machine code routine, that was entered in part one above. This is the fourth part of the subroutine.

```
55501 LD A,0
55503 CALL 4656
55506 POP HL
55507 LD B,(HL)
55508 INC HL
55509 PUSH HL
55510 LD HL,55223
55513 LD A,(HL)
55514 INC HL
55515 CP 128
55517 JR C,55513
55519 DJNZ 8,55513
55521 LD A,(HL)
55522 INC HL
55523 CP 128
55525 RET Z
55526 RST 16
55527 JR 55521
55529 RET
55530 CALL 55501
55533 01
55534 RET
```

To save the machine code routine, type SAVE "mssg" CODE 55224,350.

DATA/READ on a TS 1000

by Bill Johnson

Many of you have discovered the ZX81 Computer does not have the DATA and READ commands in its vocabulary. These commands are the backbone of BASIC programming. You may have been unable to enter many programs written for other computers since you did not have the power of DATA and READ. The following only applies to the TS 1000, TS 1500 and Sinclair ZX81. The TS 2068 uses the DATA and READ commands.

First, let's define the commands:

DATA- The DATA statement is a place to store values. Each value is seperated by a comma. The values entered into a DATA statement can be alphanumeric in nature.

READ- The READ statement inputs the values from the DATA statements, into variables defined in the program.

An example of the use of these commands follows:

```
  5 DIM A(5)
 10 FOR I=1 TO 5
 20 READ A(I)
 30 NEXT I
 40 DATA 1,2,3,4,5
100 FOR I=1 TO 5
110 PRINT A(I)
120 NEXT I
```

The above program would feed the values of the DATA statements to the variable A(I). After running this program, the values of A(I) would be 1,2,3,4, and 5.

So how can the DATA/READ routine be used on your TS?

The easiest way to explain is with an example. The program that follows will accomplish the same as the program above.

```
 10 LET A$="1,2,3,4,5,"
 20 DIM A(5)
 30 LET X=0
 40 LET Y=1
 50 FOR I=1 TO LEN A$
 60 IF A$(I)="," THEN LET X=X+1
 70 IF A$(I)="," THEN LET A(X)=
VAL A$(Y TO I-1)
 80 IF A$(I)="," THEN LET Y=I+1
 90 NEXT I
100 FOR I=1 TO 5
110 PRINT A(I)
120 NEXT I
```

The lines 100 to 120 simply show you the results, they are not needed. We will now go line by line.

LINE 10: Acts like a DATA statement. You store your values here. It is important to end this statement with a "," or the last value will not be input.

LINE 20 to 40: These lines set various variables.

LINE 50: This line sets a loop the length of A$. In this case the length is 10.

LINE 60 to 80: These lines all ask the question, "is the next item in A$ a ",". The comma is used to seperate each value. If a comma is found, line 60 increments X by 1. X is used to set the value of A, the letter of the variable being read.

LINE 70: Stores the value into the variable A. Line 80 increments Y, which is the starting place for the next value.

As you can see the above program accomplishes the same as the DATA/READ commands. The above routine can also be used to read in ALPHA values, as follows:

```
 10 LET A$="A,B,C,D,E,"
 20 DIM B$(5)
 30 LET X=0
 40 LET Y=1
 50 FOR I=1 TO LEN A$
 60 IF A$(I)="," THEN LET X=X+1
 70 IF A$(I)="," THEN LET B$(X)
=A$(Y TO I-1)
 80 IF A$(I)="," THEN LET Y=Y+1
 90 NEXT I
100 FOR I=1 TO 5
110 PRINT B$(I)
120 NEXT I
```

This program works the same way as our previous program. One limitation is that you can not use the "," character in your values, or the program will consider this a stop point.

The above routines can be used to read values for various variables at the same time. For example, you may have a DATA statement: 1,A,2,B,3,C,4,D,5,E. You can read the values by combining the methods used above. I will leave this for you to do.

Bill Johnson is the president of WMJ DATA SYSTEMS, 4 Butterfly Dr., Hauppauge, NY, 11788. He also writes (and publishes) the QuarterS newsletter, and also writes for Computer Trader Magazine.

2068 PROGRAM

Bill Gunter of Sacramento, CA shares another short TS 2068 program with us this issue. It is a program which will compare the costs of home loans. If the user enters them AMOUNT of the loan, the number of YEARS for the loan, the INTEREST rate on the loan and the number of pay PERIODS per year (usually 12), the computer will furnish the monthly payment and the total cost of the loan over the entire period of the loan. Two such calculations can be displayed on one screen which makes it easy to compare loans in terms of varying time periods, ect. Users should know that the "A" symbol in line 150 is the symbol shifted "H" on the keyboard.

```
  1 REM  ******************
  2 REM  * HOUSE PAYMENTS *
  3 REM  *    by BILLY    *
  4 REM  ******************
  5 LET Z=0
  6 BORDER 1: PAPER 6: INK 0
  9 CLS
 10 PRINT "AMOUNT? ";
 20 INPUT A
 30 PRINT A
 40 PRINT "YEARS? ";
 50 INPUT Y
 60 PRINT Y
 70 PRINT "INTEREST? ";
 80 INPUT I
 90 PRINT I
100 PRINT "PERIODS? ";
110 INPUT PER
120 PRINT PER
130 LET I=I/PER/100
140 LET N=PER*Y
150 LET P=A*I*(1+I)^N/((1+I)^N-1)
160 PRINT "MONTHLY PAYMENT="; INT (100*P+.5)/100
165 LET T= INT (100*P+.5)/100
170 PRINT
175 PRINT "TOTAL COST OF LOAN=";T*Y*PER
180 LET Z=Z+1
195 PRINT
200 PRINT "**********************************"
205 IF Z=2 THEN  GO TO 230
210 PRINT
220 GO TO 10
230 PRINT  AT 20,5;"PRESS "; FLASH 1; "C";  FLASH 0;" TO CONTINUE"
240 IF  INKEY$ ="C" OR  INKEY$ ="c" THEN  GO TO 5
250 GO TO 240
```

BASLOAD

by Dennis Jurries

After using "Firstloader" for quite some time, I felt that there was nothing that could be improved upon in programs that convert TS 1000 programs to the TS 2068. I was mistaken. In using "Firstloader", I found that my computer/recorder combination was one of those that required a load filter to work. With this "Basload" program I did not need a load filter

The program consists of a BASIC portion, and of course, a Machine Code portion. The loading lines are more distinctive in the "Basload" program, and the acceptable volume settings are a little more broad. This program is supposed to also be able to convert variable data along with the BASIC program from the TS 1000 to the TS 2068. However, I had no program of that kind to test it on, so I can not verify this. One item bothered me somewhat about this program The BASIC portion of the program is over-written when a program is converted. This makes it a little awkward to save the converted program (press NEW and start converting another program), but not impossible

This is probably the best program on the market to convert your BASIC TS 1000 programs.

"Basload" sells for $19.95, and is available directly from the author: Walter E. Styles, PO Box 325, Chester, VA, 23831, or also from Ramex International, Sharp's, and Curry Computer.

SUPERTAPE

by Tom Judd

In the last issue, I took a look at JRC Software's "Great Game And Graphics Show" for the TS 2068, a collection of short programs exploring several aspects of that machine. In front of me now, is a similar program called the "Supertape" for the TS 1000/1500 or ZX81. The big difference here is that the "Supertape's" individual selections must be loaded in seperately, one at a time...sometimes a tedious task. I remember back to my BASIC computing course, when the instructor warned against putting too many programs on one tape, "because it is difficult to locate individual programs, and the possibility of losing data on tape due to accidental erasure". Oh well, with best intentions in mind, JRC put 45 short programs all on the "Supertape"(!)

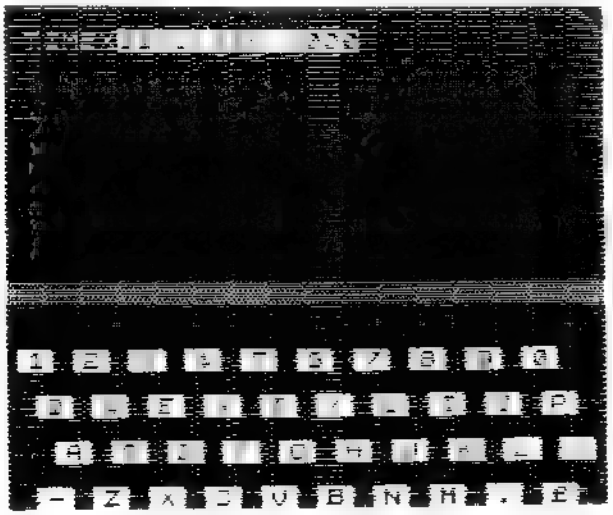
There is so much here, that it would take a book to describe it all. In fact, JRC could take a hint by this, and offer the "Supertape" with some real documentation, instead of a long strip of 2040 printer paper. (How about a nice booklet.)

You get utilities like the assembler and text editors, mathmatical programs like the ploters and statistics, games like Dodge and Dragon's Death, and lots of graphics routines, including "Osciliscope". This was my ultimate favorite. In fact, I have never seen any animated graphics sequence on the TS 1000 quite like that one before.

A couple of suggestions. Read all of the REM statements in the program listings before you RUN the programs. They contain some helpful explanations. Also, almost every program can be sent to the printer, and individual screens can be copied... useful with the graphics programs.

In closing, I would recommend this program not only for the fine value (you really get your money's worth), but the author of "Supertape", John Coffey is a very good programmer, and I learned quite a bit of technique by taking the programs apart. Good humor abounds, and the variety is plentiful.

SOFTWARE



Here is a listing:

1. Program Name Reader
2. Loading Tip
3. Flash
4. Bonus
5. Wind
6. 3D Plane
7. Self List
8. Character Set Bandana
9. 1K Text
10. Tape Unlocker
11. Standard MC Loader
12. Beep and Phraser
13. Try This
14. Just For Fun
15. Sines
16. Logo
17. Parm
18. 68 Lines
19. Flower
20. Etchsketch
21. Speed Lander
22. Dodge
23. Keygame
24. Touch Type
25. Statistics
26. Slope
27. FN Plot
28. Niche
29. Super FN Plot
30. Extension To Basic
31. Multiple Programs in Memory
32. Printer High Res
33. Magazine 1
34. Magazine 2
35. Cubic Maze
36. Dragon's Death
37. Osciliscope
38. 16K Tape Utility
39. 16K Assembler
40. Text 1
41. Text 2
42. Text 3
43. Timex/Sinclair 1000
44. JRC Poster
45. Printer Hi Res

TS 2068 / SPECTRUM-WARES

*** SPECTRUM-NOTES ***

Did you know that the new ZX Spectrum Plus (the 48K Spectrum dressed in QL clothes), is being sold now, in the United States? But not from Sinclair. It is available from a new company called "The English Micro Connection", 15 Kilburn Court, Newport, Rhode Island, 02840, for $159 95. EMC (short for English Micro Connection), also carries many other items, including hardware and software for the Spectrum compatible Timex/Sinclair 2068. They are the exclusive U.S. distributors for Hi-Soft, Ultimate, Beyond, and Microvitec RGB Color Monitors; and have been appointed North American sales agents for Computers of Wigmore Street, London. EMC has a brand new 32 page catalog out, that is absolutely free...yours for the asking. Their prices are some of the lowest we have seen for imported English computer merchandise. If you are trying to hunt down a pair of Sinclair Microdrives, and an Interface One, EMC has them in stock!

Another company that is new for the U.S , is Damco Enterprises, 67 Bradley Ct., Fall River, MA, 02720. They are the exclusive American distributors of the Rotronics Wafadrive, the hot-selling English stringy floppy system. Damco has made arrangements for Rotronics to manufacture a special adapter for the TS 2068 in tandem with an OMNI-EMU for the cartridge dock. What would you pay for a dual Wafadrive system and interface, an onboard RS232 Interface, and a Centronics Interface, plus free word processor software, 48 page manual, and a Spectrum Emulator? All of this in one package for the almost unheard-of-price of $229.95. If you already own an OMNI-EMU, the price is even lower. Damco strongly recommends that other adapters and interfaces for the TS 2068 should not be used, since this would void the Rotronics service warranty.

Gerry Russel of Russell Electronics, RD 1 Box 539, Centre Hall, PA, 16828, reported that they have released a new improved version of the popular "Romswitch". It is said to be practically 100% Spectrum Software compatible. It works with all of the programs that Russell Electronics previously had found to be "un-loadable". They also have available an up-date for older models of the "Romswitch" called a "Ronfix". The improvements center around the principal of placing small resistors on the data lines. This allows the "interrupt-driven" Spectrum Software to run on the 2068.

'Enter Lengua" (Doug Dewey), has available a "MDA", or Microdrive Adapter for the TS 2068 The MDA makes the rear edge connector of the 2068 pin-for-pin compatible with all Spectrum peripherals. When used in conjuntion with the new OMNI-EMU, the user is able to operate the Sinclair Microdrives. For further information and prices, write to: 206 James St., Carrboro, NC, 27510.

E. McGhee, suite 150, 10127-121 Street, Edmonton, Alberta, Canada, is offering a free 16 page Spectrum Software catalog. Mr McGhee recently dropped us a line, and told us, "...we believe that we have run more Spectrum Software Cassettes than any other group in North America, over 60 titles, but we only carry those titles rated 9 by Sinclair User". The free catalog is complete with descriptions of each title. Write for your copy.

GUIDELINES FOR ORDERING FROM OVER-SEAS

Quite a few of you are ordering items direct from England for your Timex/Sinclair. Those alluring advertisements in all of the full-color British computer magazines are just too much! We don't blame you one bit...and are even guilty ourselves. What with the British Pound down to its bare bones (equivalent American Dollar value was $1 04 on February 26, 1985), one could save quite a bit of money. It is also sort of an adventure to order and receive something from a "foreign" country. We have done a little research (mostly personal experience), and have come up with a few guidelines on ordering from over-seas. It is really not all that complicated, and is somewhat fun. There have been several reports from T/S Users here in the States, of a two-week turn-around time, when the items arrived in the mail!

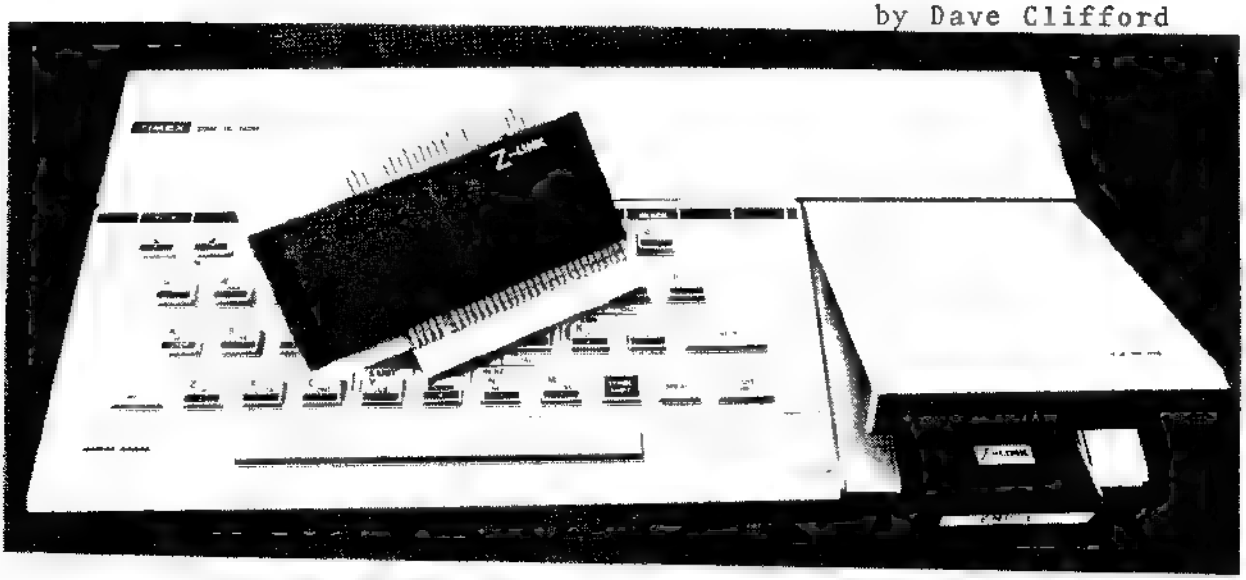
1. The first problem one may encounter is the currency exchange The best solution for this problem is to order with you VISA or MASTER CHARGE credit cards (the same as ACCESS and BARKLEY CARD in Great Britain respectively). The currency exchange is conducted automatically by the card companies when using this method. Since the rate-of-exchange is constantly changing, ordering by check or money order is risky business. Only the larger full-service banks can provide you with a check for pound currency. They usually draw on an account that they have in England. Like we have said...your best bet is a credit card, providing it is acceptable with the particular vendor you are going to deal with.

2. Make sure you find out how much you will need for shipping and handling (and any other tax,ect.) If you deal with a vendor that is accustomed to foreign orders, they can provide you with this information.

3. When writing to request information, or ordering, be very careful to print clearly. Use only proper sentences, and no slang. That way, they will know exactly what you are saying or requesting. Remember that some of their words are spelled a little different, for instance: "catalogue", "colour", and "programme" (instead of catalog, color, and program). Also, it is important to remember that most of the Sinclair vendors have never heard of a Timex/Sinclair 2068, or a Spectrum Emulator. So always use the 48k ZX Spectrum as your reference One particular software vendor that is aware of the Timex line of computers is Software Supermarket, 87 Howards Lane, London, England, SW15 6NU. They have a nice selection of software, and do a large American export business.

THE Z-LINK INTERFACE .....a synopsis

by Dave Clifford



Simply put, the Z-Link Interface Card is a "plug-on" device that re-configures the peripheral I/O port connector pin-calls of the Timex/Sinclair 2068, to match that of the Sinclair ZX Spectrum Microcomputer, and thus making the TS 2068 "HARDWARE COMPATIBLE" with Spectrum peripherals.

The Z-Link makes available to the peripheral, all required address and data lines, as well as "hand-shaking" and "housekeeping" control lines required by the Z-80 CPU. The Z-Link also supplies the two additional supply voltages (+12v and +9v), via two type LM-78 series 3 terminal regulators.

The regulators are filtered with temperature-stable tantallum capacitors to guard against noise and "self-oscillation" (an inherent problem that is "overlooked" by many commercial designers), until the system is switched-on. As with all digital systems, the secret to successful circuit operation is good connections, a common ground return, liberal distribution of by-pass capacitors, and a "quiet" power supply!

That describes the Z-Link Interface Card. NOW, you are wondering what it's uses are. I could say that it will "RUN ANYTHING" (but that would be both un-fair and inaccurate in my book). I will however describe the systems and peripherals that I HAVE and DO USE...AND USE EVERY DAY!

But first, I want to say something about "EMULATORS", and clear the air about these devices. Without getting too deep into the subject itself (it would take the entire magazine), it is here that I will say that YOU NEED ONE to use Z-Link...but which one?

There are two basic "types", the first is known as "The Spectrum Emulator" or EMU-1, brought to life by Doug Dewey (The Triangle T/S Users Group), and consists of a 128k EPROM that is mounted on a p.c. card that is fitted into the TS 2068's Command Cartridge Port. The second is known by the trade name: "The ROMSWITCH" (editor note-see review in Jan/Feb 85 issue of T.D.M.). This one consists of an actual Spectrum ROM, mounted on a p.c card with a second socket for placing the TS 2068's "home ROM", then the entire assembly is fitted inside the 2068 (plugged into the "home ROM" socket).

The DIFFERENCE between the two is the ROMSWITCH is manually switched-in, and becomes the 2068's sole "operating system"...some control keys and built-in hardware become "transparent", because the Spectrum ROM does not contain the "instructions" for their support (i.e. SOUND, FREE, STICK, and the cartridge port).

The type EMU-1 and EMU-2 however "sits" in the cartridge port and is "BOOTED" into play by the 2068's home-ROM. But what really makes the difference is that the 2068's "SHADOW-ROM" is brought on-line as well. It is this SHADOW-ROM that contains the instructions, that enables the TS 2068 to "commucicate" with the "smart" peripherals like the Interface-1 and Microdrives, or the Rotronics Wafadrives, with the "help" of the EMU-1 acting as an "interpreter"...and thus "EMULATES a Spectrum".

And now the peripherals!!

With space being at a premium, I will discuss the operation of two of the "most popular" systems that seem to have the majority of users "baffled", the ZX-Microdrives and the Rotronics Wafadrives.

I have had the Sinclair ZX Interface-1 and two ZX Microdrives

ON-LINE since October '84, and have used the system extensively. I do all of my word processing with Tasword-II installed on Microdrive Cartridges, and have just installed Masterfile...(FANTASTIC!). But the drives themselves are only PART of the system. The Sinclair Interface-1 also has an RS-232 interface, as well as a unique L.A.N. (Local Area Network) for "networking" up to 64 Spectrums (or 2068's), that are also fitted with the Interface-1 (There are five users here, in the South Bay TS User's Group that are presently running the Interface-1 and Microdrives, and sometime when we can all get together, I would like to try a game of HUNTER-KILLER on the L.A.N.)

The second system that I have just received from the United Kingdom, is the Wafadrives. This is a 'twin" drive system custom manufactured by BSR (the well-known audio people) for a company called ROTRONICS. I have had this system on-line for the past two weeks and it is a VERY user-friendly sytem. When brought "on-line" it sports it's own operating system, and has commands VERY similar to CP/M. In fact, Rotronics refers to the operating system as "W O S," (as opposed to CP/M's DOS). On top of having two 128k drives, the Rotronics Wafadrive also has an RS-232 AND a Centronics Interface BUILT-IN!!! I even use the Westridge 2050 Modem with the Wafadrives! (Yes, the 2050 Modem is plug-compatible with the Sinclair Spectrum. Even MTERM II runs on the Spectrum. However, when you go back to BASIC, you will crash. This is due to MTERM's call for BASIC. Machine Code hackers ..get out your 'HOT-Z" or "DISA-Z" and go to work!)

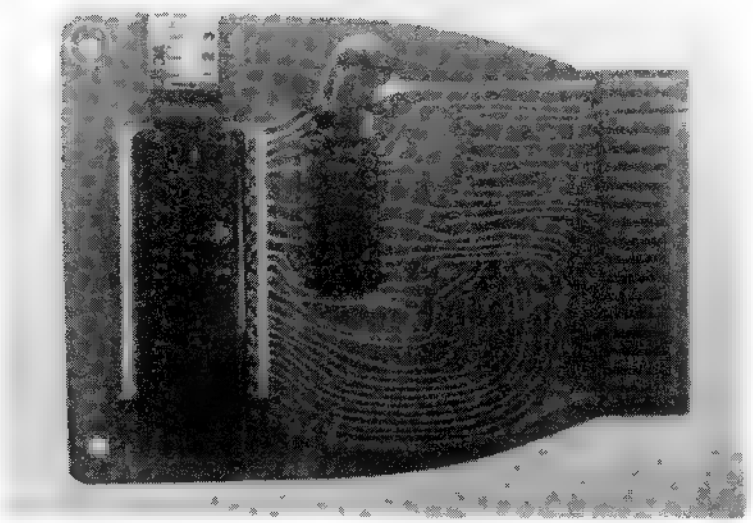
The above systems are operated with the Z-Link Interface and the EMU-1 (or EMU 2), as supplied by Doug Dewey.

WHAT'S NEXT??? I am WAITING for one of two interfaces from the U.K , that support STANDARD 5¼ floppies. Gaze through a copy of ZX COMPUTING sometime and let your imagination "FLY". (The prices will amaze you too!) I just wish that Mother England had and equivalent to L.P.S. Blue Label...(at the same time, I'm glad she does not')

The Z-Link is priced at $49.95 and is available from: TEJ COMPUTER PRODUCTS, 859 North Virgil Ave., Los Angeles, CA, 90029.

THE OMNI-EMU

by Tim Woods



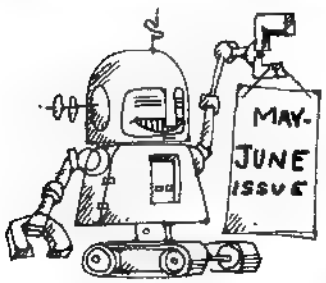
The OMNI-EMU is the very latest version of Spectrum Emulator or "Chameleon" designed by Doug Dewey (Triangle Sinclair Users Group). It is sold through Doug's company "Enter Lengua", and now by several different Timex/Sinclair vendors. The OMNI-EMU replaces the previous EMU-1 (the EMU 2 is still available). What is the difference? First of all a 27128 Hitachi EPROM, that is presently the only means of operating the Sinclair Microdrives and the Rotronic's Wafadrive is a new feature The Emulator board itself has been designed to be very versatile...a DIPswitch (mounted on the board) can access the four 16K blocks of memory for specific application purposes. The supplied EPROM can be swapped with other LROS (language ROM Oriented Software), the board can act as a cartridge (AROS, or a ROM board. Some jumpers may be required depending upon the particular use. Actually the documentation for these advanced applications of the OMNI board are still currently being written

The OMNI-EMU as supplied, will allow the T/S 2068 user to run "almost" every piece of software available for the English 48K ZX Spectrum. It had been originally thought that the "chameleon' device would not run as many titles as a direct issue 3 Spectrum ROM replacement of the 2068's "home ROM" This however, is not really true In fact some software said to be un-loadable will run on the emulator There are still a couple titles that won't load or run, like "Chequered Flag (PSION), Toolkit (Hi Soft), Valhalla, and few others. The Reason? 'Interrupt-driven' programming techniques appear to be the culprit, and the common source of problems here.

The OMNI-EMU, like it's predecessor the EMU-1, slips into the Command Cartridge port on the TS 2068. Our sample fit very securely with no insertion problems. The door to the cartridge port is able to close, with the Emulator tucked safely inside. At a first glance the OMNI appears to be a very quality board...compact, gold plated edge-connector fingers and plated through holes. I understand that each new Emulator is thouroughly tested before it is shipped Plus there is a two year warranty! The only problem that we forsee, is possible mishandling by the user. Be extremely careful when handling the bare board, that the foil traces and semi-conductors aren't touched (static discharge). Always make sure the power is off when you insert the board, and also when it is removed...when you want to return your 2068 back to its normal operating mode.

We put our OMNI-EMU through the paces, by test-loading 12 of our Spectrum programs. All 12 were a successful load! Absolutely no problems. When the OMNI is first switched on, it is interesting to point out that the 2068 first switches to it's normal mode for an instant, then checks to see what is in the cartridge port... when the Spectrum mode is initiated (Sinclair copyright notice alone).

We strongly feel that the OMNI-EMU is a good way to go for Spectrum conversion. First of all, the user will not have to tamper with their computer (as is the case with "Romswitch" or direct Sinclair ROM replacement). Secondly, this is the only method of "booting" Sinclair Microdrives or Rotronics Wafadrives. Then coupled with the new price of $50.00, it is an excellent choice that should be considered.



UPCOMING:

SPECIAL ROBOTICS ISSUE!!!

SPECTRUM SOFTWARE

WHITE LIGHTNING

by Michael Carver

"White Lightning is a high level graphics development system for the Spectrum 48k." (This program can be used with the TS 2068, with Russell's ROMSWITCH or other Spectrum ROM add-ons.)

You want to create some exciting arcade game, but have realized the limitations of speed in BASIC, or have encountered the need for a mastery of machine code you know is still months away. Maybe you have a short movie running through your head that you would like to produce. Then White Lightning is for you.

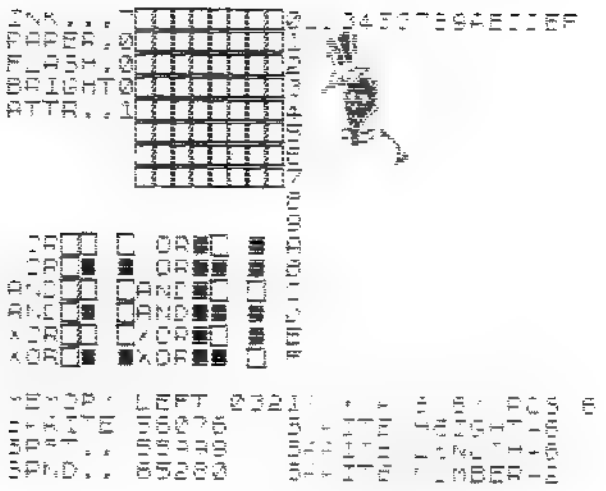
White lightning comes in a library case with two cassettes (4 seperate programs), one manual (131 pages, and a "cheat sheet" which contains a sample Lunar Lander game, and useful subroutines. Two of the programs are demonstrations of the possibilities using White Lightning. One is about 20 minutes of 16 different animated programs. The other displays 167 arcade sprites included with the software; (i.e. Asteroids, Pac-Man, Defender, Frogger, Donkey Kong, and many more). The other cassette contains the Sprite Development Package and White Lightning proper.

SPRITE DEVELOPMENT PACKAGE

A sprite is a defined picture or graphic element which is stored in memory to be called up and put onto the screen when needed. The sprite is placed whole on the screen, not plotted or drawn. Some computers limit the size or amount of sprites that can be developed. The Commodore 64 allows only eight sprites per program. The TI/99 allows 32 sprites, but they can only be 8 pixels by 8. With White Lightning, one can have 255 sprites of any size (within memory limitations). They can even be larger than the screen.

Sprites are generated using the Sprite Development Package (SDP) by defining each 8x8 pixels grid to be incorporated into the sprite. One plots out each pixel to be set, paper and ink colors and other attribute assignments (see fig. 1). These grids are then pieced together like tile on the larger screen to the right, making up the sprite. The completed sprite is then given a number and stored in memory. Within the SDP, the largest sprite possible is 15x15 characters, but these can be joined later in White Lightning to create large sprites.

Fig. 1



SPD allows one to rotate a sprite 90 degrees, invert the colors, mirror the sprite, even put a sprite inside another sprite. Also included is an arcade sprite library (the 167 sprites shown in the demo tape). After the sprites have been defined, they are stored on tape to be loaded into White Lightning for manipulation.

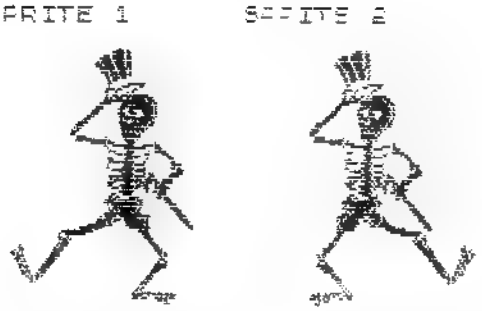
WHITE LIGHTNING

BASIC is limited in flexibility and speed. Machine Code is fast and compact, yet it is difficult to learn and master. Development of Machine Code programs is tedious and is easy to crash. Also a working knowledge of the computer's mechanics is required. Enter White Lightning!

White Lightning (WL) incorporates a standard Fig-Forth language and has speed very close to Machine Code. Forth is a simple high level language that is fast and expandable. Forth is an easy language to learn. If you already know BASIC, you will pick up Forth quickly and within a few hours should be able to write simple programs. One of the useful features of Forth is that it grows as one programs. If a routine or manipulation is needed but does not exist, you take parts of Forth and create a new command or routine, which then becomes part of Forth. In this manner, Forth expands to meet your computing needs. Forth code is easier to read, edit, and is harder to crash than Machine Code.

Added onto the Forth language in WL, is IDEAL (Interrupt Driven Extendable Animation Language), with over 100 words or commands. This is the heart and the beauty of WL. One can actually have two programs running at the same time using IDEAL. WL also includes access to many of the Spectrum commands via Forth (i.e. COPY, AT, BORDER, DRAW, CIRCLE, SCREEN$, POINT, TAB, ect.). It is also possible to access the joystick ports, and the sound generator chip on the TS 2068 through the use of IN and OUT, and the BEEP command via BLEEP.

Example 1



To make the skeleton move right one step, the following FORTH definition is used:

```
: STEP 1 COL +! 2 SPN ! PUTBLS 1
SPN ! PUTBLS ;
```

In English: Sprite 1 is on the screen and Sprite 2 is placed on the screen 1 column to the left and over Sprite 1. Sprite 2 is then placed on the screen directly over Sprite 1.

Complete control of sprites and game or animation programs is provided with WL. Sprites can be enlarged, scrolled pixel by pixel (with or without wrap...vertically or horizontally). Collision between sprites can be detected for use in games. One sprite can be printed behind or in front of another, or combined to make a new sprite. Windows can be defined on the screen or inside sprites, giving greater control over the behavior of the sprites. An example in one of their demonstrations, is of a television sprite with various different sprites animated inside it. Using WL, one can freely mix BASIC, Machine Code and White Lightning, passing control easily from one program to the other. (See example 1 for a simple program to animate two sprites.)

Upon first reading the manual, I was overwhelmed by all of the new languages and commands needed to use this package. After a quick look through the manual, I sat down at the computer with the manual and found the task far less intimaidating than first thought. Each part of the manual is filled with step by step examples to be tried out on the computer. This approach is to be applauded, as it makes learning the ropes less of a challenge, and more of a discovery and adventure. The Forth language's major commands are shown by example, but for a better understanding of the language, there are many excellent tutorials available and these are listed in the manual. I have two minor complaints about the manual. First, there is no index, though the table of contents is helpful. It is sometimes hard to read the manual without excellent lighting as the print is small, and printed black on a dark green background to prevent photocopies and piracy.

White Lightning is certainly a good buy. Not only does one get the sprite generator program and the ability to animate sprites and design arcade games, but there is also the Forth language, which can be used on its own. If you create a masterpiece, you can sell your program without obtaining special permission, or paying for royalty rights. Oasis Software, the company that publishes WL, is offering to market the "very best".

You can obtain White Lightning from Software Supermarket for £14.95 plus £1.50 shipping and handling. Their address is 87 Howard's Lane, London, SW15 6NU, England. Or you may call their 24 hour answering service at 01-789-8546. They accept VISA or MASTERCARD. They usually ship within one to two weeks. If any of your friends own Commodore 64's...White Lightning is also available for £19.95 cassette, or £29.95 disk. With the pound down to all time low, now is a good time to order from Britain.

Michael Carver is the present Chairman of the Portland Area Timex/Sinclair Users Group in Oregon. He writes for the groups newsletter, and has interests in MC programming and graphics for the TS 2068.

THE LORDS OF MIDNIGHT

by Tim Woods

From the fantasy worlds of Tolkien and C.S. Lewis, comes a similar "epic" adventure in the form of a Spectrum game program called "The Lords Of Midnight". The story background is typical...the struggles between good and evil. In this case, Luxor the Moonprince and his son Morkin battle the realm of Doomdark and the ice-fear. There are actually two seperate ways to play the game.

The most fascinating aspect of "The Lords Of Midnight", is the elaborate graphics system. There are 32,000 scenes in all! The players ability to spot certain landmarks on the horizon, will help in deciding the outcome. The graphics are very nicely done. With horses, wolves, armies, and an intricately detailed landscape...the programmers deserve a good deal of praise. Most of the scenes have small parts of other scenes to construct what is on the screen. By operating the keyboard, you actually "move" forward through the "Land Of Midnight", and the scenery in the distance appears to get closer (any number of directions can be chosen).

Another nice attraction of this program is the packaging. It is supplied with a "library-style" case, a very comprehensive 29 page manual, and a plastic keyboard overlay. I thought I would take this time, to point out to you novice Spectrum fans, that all keyboard overlays designed for the ZX Spectrum, also fit the Timex/Sinclair 2068 perfectly.

Getting back to the users manual, it is very explanatory and detailed (actually it is more like a small paperback book), and even includes a background story with five chapters called the "Midnight Chronicles".

Some other features worthy of mention include: the facilities to SAVE a game in progress to tape, and each graphics scene can be sent to the printer (including the 2040), to give you a running account of your quest.

"The Lords Of Midnight" is a very playable game, and even somewhat habit forming. It is slightly different than an "all-text" adventure game. In fact the text itself is very sparse. No standard adventure commands or jargon is needed, since most of the games control commands are one-button funtions (featured in a few on-screen menus) on the keyboard. If you do not have a copy of this game program, and it sounds in the least bit interesting to you...I would suggest that you go out and obtain one. "The Lords Of Midnight" is hard to beat by any standard.

It also might be interesting to point out that this adventure game is actually part of a trilogy. Part two of the trilogy is already out on the market, and it is called "Doomdark's Revenge", and is reported to have 48,000 entirely new scenes. Later this year, part three which is entitled "Eye Of The Moon", will be released.

Our copy of "The Lords Of Midnight" was obtained from: E. McGhee, Suite 150, 10127-121 Street, Edmonton, Alberta, Canada, T5N 3X1.

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Special Offer For Readers Of Time Designs Magazine: E. McGhee is offering "The Lords Of Midnight" at a special price of $23.50 for you. The price includes shipping and handling. Also, an issue 3 Spectrum ROM chip (plus chip puller tool and detailed instructions for the TS 2068 are included) for $19.50. Send check or MO, in U.S. dollars to address above.

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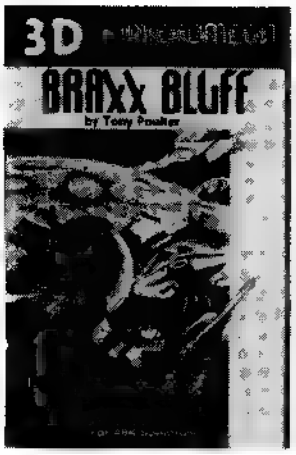

BRAxx BLUFF

by Tom Judd

Do you like an arcade game that is both very easy to play, and extremely challenging? Then I have the program for you...it is called "Braxx Bluff". That is kind of a strange name for a game, it is called that because you have to rescue some stranded space travelers from a place on the planet Prolon called "Braxx Bluff". Like I said earlier, this game is easy to play. It uses only the cursor arrow buttons, and the "0" for the FIRE button. It would be nice to have a joystick to play, and there are provisions for a British joystick interface, but unfortunately, I do not own one.

Even though the controls are simple (this is refreshing compared to other games that require you to press a lot of buttons at once, and remember a bunch of details), the game provides you with continuous entertainment...with variety. This is a multi-screen 3D rescue game.

The first part, is a very neat landing sequence, when you approach the planet in your spaceship. The graphics here are fantastic! This is a tricky part, but once mastered, you will be on the planets surface (on foot) in search of the survivors and the wreckage of their ship.

To help you with your search, you will also need to find a "land-crawler" vehicle and later a "sea-crawler". At the same time, you need to be on the look-out for the space "beasties" that can kill you, if you don't shoot them with your laser gun.

Well, I haven't made it very far, but that is what keeps me going. You can SAVE your present position on tape, for play at some other time. If you blow it, you have to start all over from the beginning.

"Braxx Bluff" was a pleasant suprise to play. Very good graphics, excellent sound effects, and an extremely addictive game. (I obtained my copy from Software Supermarket, England.)

CONTRIBUTORS

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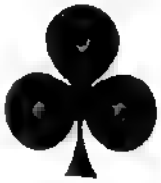

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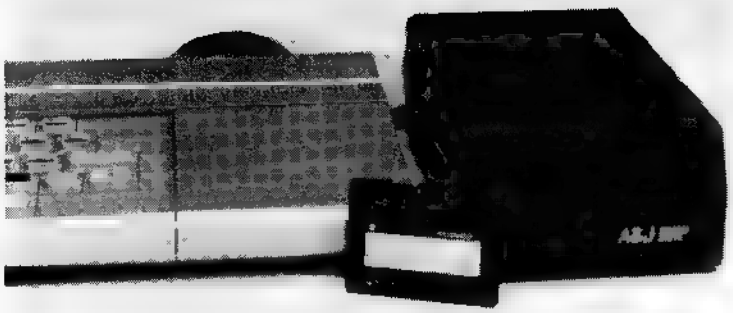

FEATURES

- Lowest cost high speed mass storage system available.
- High speed 11K baud data transfer rate.
- Loads 28K program in 24 seconds.
- Simple, easy to use!
- 90 day warranty
- Reliable and portable
- No rewinding or volume controls
- No cassette hassles
- Multiple drive systems.

PART #	PRODUCT	PRICE
820036	MODEL 2000 STRINGY FLOPPY II includes. Interface Drive, Expansion cardedge Owner's Manual, 5 Micro Wafer II, Wafer Organizer Add $6 50 Shipping Charges	$ 199 50
830017	MODEL 2000 OWNER'S MANUAL	4 95
820040	MODEL 2000 DRIVE 2	124 50
900001	10' MICRO WAFER I	4.25
900002	20' MICRO WAFER I	4 25
900003	35' MICRO WAFER I	4 50
900004	50 MICRO WAFER II	4 75
900005	62 MICRO WAFER II	4 75
850001	WAFER ORGANIZER (Folder holds 16 wafers)	5.00
850002	WAFER CADDY (Desk Top Tray Holds 6 wafers)	9 95
850003	WAFER WHEEL (Desk Top Wheel Holds 30 wafers)	18 75

STANDARD WARRANTY:
All A&J Micro Drive Sales & Service products (except MICRO WAFERS) are warranted for 90 days If your products should fail within 90 days, A&J Micro Drive will repair your products for no charge, if return postage paid Additionally, all products may be returned postage paid within 30 days for full refund of purchase price 30 day refund policy may vary with A&J Micro Drive Hardware suppliers.

WAFER WARRANTY:
Wafers are guaranteed for a period of 45 days from date of shipment If the wafer should fail during this period, return the wafer post paid and replacements will be returned as soon as possible at no charge

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*Please add 6% Shipping/Handling

TIMEX 2068 PROGRAMS

Production Scheduler	12.95
Accounts Payable/Receivable	17.95
Sales Trend Analysis	17.95
Business Forecasting	12.95
Financial Package (With Amortization)	12.95
Income Statement	17.95
Financial Ratio Analysis	12.95
Pro Football Forecast	9.95
Executive Clue	12.95
Straits of Hormuz	19.95
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Lost	19.95
The Island	19.95
Quetzalcoatl	19.95
Laserzone	19.95
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Velnor's Lair	19.95
Gridrunner	19.95
Traxx	19.95
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From TIMEX 2068 To ZX SPECTRUM

While many owners of Timex 2068 computers are enjoying Spectrum software, a lot of people have asked us how it is done. We know of three methods presently being used:

1) SPECTRUM ROM - You must remove the Timex ROM chip from the computer and replace it with a Spectrum ROM. While you will be able to run Spectrum software you will not be able to run 2068 software.

2) EMULATOR - The Emulator board fits into the 2068's cartridge dock. You are now ready to run Spectrum software. When you want to run 2068 software just remove the Emulator from the cartridge dock.

3) ROMSWITCH - The ROMSWITCH is a two-piece system; the first, contains a Spectrum ROM chip, and you must remove the Timex ROM from the computer and mount it on the ROMSWITCH board. You then insert the ROMSWITCH board where the Timex ROM was removed. The second step is to mount the magnetic slide switch to the computer case. When you want to run either Timex or Spectrum software just slide the switch to the mode required.

ALL THREE OF THE SYSTEMS LISTED ABOVE CAN BE OBTAINED FROM EMC. WE ALSO HAVE THE NEW MICRODRIVE ADAPTER BOARD THAT ALLOWS YOU TO NOW USE THE SPECTRUM MICRODRIVES.

ITEM	$ PRICE $
SPECTRUM ROM CHIP	$ 14.00
EMU I EMULATOR	$ 45.00
THE ROMSWITCH	$ 49.00
EMU 4 MICRODRIVE ADAPTER To operate microdrives you also need an EMU I Emulator.	$ 30.00
EMU 5 COMBO The combo consists of an advanced version of the EMU I and a microdrive adapter.	$ 75.00

ITEM	$ PRICE $
ZX SPECTRUM PLUS	$159.95

The latest Spectrum computer features a QL type case, and the first Spectrum with a real keyboard. As this is the English model, you must supply the 9 volt DC power supply.

ZX SPECTRUM EXPANSION SYSTEM	$129.95

The Expansion System consists of an interface I, a Microdrive unit and a Cartridge Pack containing: A WORD PROCESSOR, A FILING SYTEM, A GAME, A GAMES DESIGNER, A BLANK CARTRIDGE, and an INTRODUCTORY CARTRIDGE.

ZX MICRODRIVE UNIT	$ 61.50

One Microdrive unit with an Introductory Cartridge.

ZX MICRODRIVE CARTRIDGE	$ 3.00

One blank Microdrive Cartridge, with at least 85K capacity.

ZX LPRINT III INTERFACE	$ 45.00

This Printer Interface has both an RS232 and Centronic output, no software is required due to the driver software being on EPROM. Cables are available for $14.00 each.

ADAPT RGB OUTPUT MODULE	$ 48.00

Just plug this module into the back of your Spectrum and connect to an RGB monitor, you won't believe the difference.

U SLOT	$ 18.95

Allows you to connect two different peripherals at the same time.

The Memotech DMX80 Correspondence Quality Printer.

SPECIAL DEAL!! *Get the Tasman Interface (retail $90.00), Tasword II (retail $49.95) and the Memotech DMX-80 Epson compatible printer (96 CPS retail $399.95) for a package price of only $389.95+$5.00 S/H.*

(Your printer cost only $350.00)

Reliability in Writing

New Software from Ramex

by campbell systems for Timex 2068

Can YOUR Database Handle This?

With MYRIATRON'S Micro-Print up to 51 columns

PROFESSIONAL FILE MANAGEMENT, DATA RETRIEVAL AND PRESENTATION
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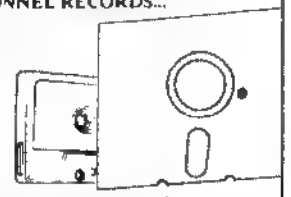
MASTERFILE can!



32 42 or 51 characters per line!,
26 fields per record,
Unrestricted number of records, 36 user defined Display/Print formats, Fast search & sort facilities,
Around 32K of RAM available for data!

Now with MF-PRINT and MASTERFILE version 09, you can format your data for a full width printer!

Works with most popular printer interfaces. Fully variable report widths (over 140 columns) and lengths. Powerful numeric editing and column totals. A most no reduction in space available for data.

Soon to be available on disk $49.95

MASTERFILE with MF-PRINT $39.95 Over 10,000 Sold Worldwide!

CS

OMNICALC HAS BEEN EXTENDED!

Available January '87

The thousands of satisfied owners of the original OMNICALC spreadsheet program for the Spectrum will already know how powerful and versatile it is. The extended version which goes under the highly original title of OMNICALC 2 retains all the good features of the original and adds many more such as:

- Inbuilt graphics to display information from your data
- Insert/Delete column and row functions
- A separate work area for storing data items in spreadsheet
- Plus consolidation etc. etc.

Now For TS 2068

It can be used with or without a full size printer. Includes a conversion program for use with files created on the original OMNICALC. Supplied complete with a comprehensive manual.

OMNICALC 2 for Microdrive and Spectrum 48K

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SPEED. REDEFINED

AN UNEQUALED EVOLUTION IN 2068 COMPUTING

Imagine: you slide into your seat, select a program disk and slip it into your disk drive. In about the time it takes your finger to press the button, your selected program is up and running.

Realize: you don't have to imagine anymore—The new **Millennia K** disk interface and disk drive system from Ramex will enable your 2068 to operate in the league of computers costing 5 to 10 times as much! In fact, when it comes to maximum transfer rates, total storage capacity per disk and efficiency of formatted operation, the **Millennia K** will out perform Commodore, Apple *IIe* or IBM PC!

In order to extract the maximum efficiency from the disk, a whole new operating system had to be devised; the result: **SP-DOS.**

SP-DOS offers these operating features:

- **Loads 32K per second!**
- **Stores 820K per disk**
- **Occupies only 4K ram**
- **Compatible with most software**

Super support!—a whole new generation of Disk Software:

- **Tasword II (Word Processing)**
- **Tasmerge (Mailmerge)**
- **Masterfile (Database)**
- **Omnicalc II (Spreadsheet)**
- **Devpac (Assembler)**

Language Support: • **Basic** • **Disk Pascal** • **"C" Language Compiler**

The **SP-DOS** system allows you to use all the Timex cassette commands such as: • Save " " • Load " " • Save Data " " • Load Data " " • Save Screen$ " " • Load Screen$ " " • And all the Micro Drive Commands

Drives that may be used include Qume, Tandon, MPI, Teac, Shugart etc. Drive #1 is double sided, Quad density, 160 tracks. Drives #2,3,4 may be single or double sided, Double or Quad density.

You can wait and hear about the **Millennia K** from everyone else, or take action now and start drivin' today!

The Millennia K interface only: **$200.00**

The Package: $450.00 + $5.00 S/H

includes Drive #1, case, P/S, cables and interface.

Orders are now being taken however, due to tremendous demand for the **Millennia K** interface system, orders will be on a strict first come, first serve basis! Reserve your system today.

Send check or money order or call 1-313-731-2163 for Visa and MasterCard orders. Michigan residents please add 4%.

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easy no cutting or soldering instructions..... $49.95
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The TEXTWRITER series features wordwrap, L &/or R
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$ SMART II Modem software for the 2050 modem $23.95
$ Multi Draw the 2068 joystick paintbrush
software. MAGNIFY - COPY - CHANGE COLORS $18.95
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$ Mystery Manor Graphic adventure game $15.95
$ THE CROWN (Dungeons & Dragons adventure) $19.95
$ TIMEGATE 4D space game from ENGLAND for 2068 ... $15.95
$ 2068 Compiler (speed up your basic programs $29.95
$ VU-FILE $ VU-CALC $ VU-3D ..... each $15.95
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about it!) Doesn't your 2068 talk to you ? $19.95
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$ 2068 Adventure titles : Ghost town, Robber, Star-
fire, The Island, Quezalcoatl, and Lost each $19.95
$ "007 SPY" The 2068 Tape unlocker! It will 'STOP'
and' BREAK ' any 2068 Machine Code program....
make backups of your expensive tapes $14.95

SPECTRUM 48K SOFTWARE
Requires 2068 & ROMSWITCH

$ DRAGONSBANE 3D DUNGEONS & DRAGONS adventure GREAT'$19.95
$ ANT ATTACK get'em before they get you! $17.95
$ Aquaplane Just for you Watersking buffs $19.95
$ Fred Pyramid Maze (Indiana Jones eat your heart
out this is the real treasure hunt! $19.95
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$ Meter Storm Space action game. not for the weak $19 95
$ The Snowman based on the book by Raymond Briggs $19.95
$ Gridrunner all-time English arcade hit $19.95

(each a great adventure in itself)
$ THE KET TRILOGY !!!! The ultimate Spectrum Adventure.
- The Mountains of KET dare you discover the secrets
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but now the real adventure begins!!!! $14.95

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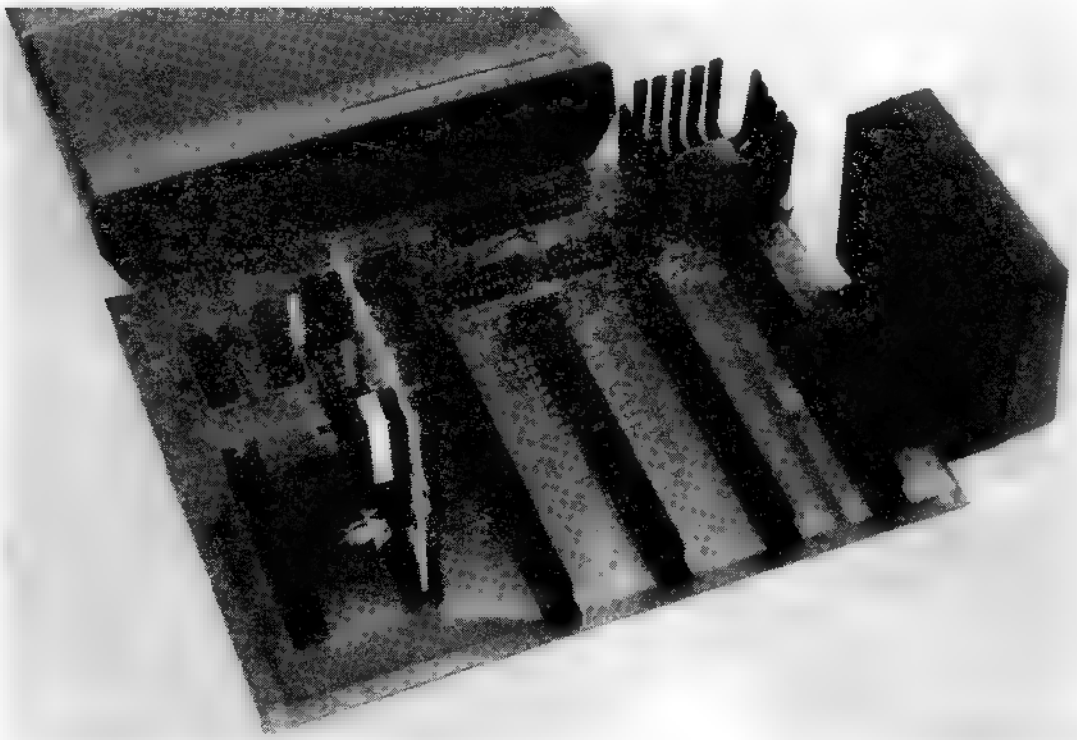
BUDGET ROBOTICS & COMPUTING, BOX 18616, TUCSON, ARIZONA 85731



Above shows fully populated BUFFERED BUSS EXPANSION BOARD and RX-81 PARALLEL I/O BOARD plugged into TS1000 with 16K RAM, 5 volt 3 amp regulator (top right), buffer decoder ICs (across top), six expansion connector points (across bottom) with RX-81 I/O board plugged into expansion point second from left.

BUFFERED BUSS EXPANSION BOARD - 6 3/8" x 8 1/4" double sided/ Plated thru holes/Parts list/documentation/90 degree connector. For ZX80, ZX81, TS1000 & TS1500. Versions available'

'EXP-1' Bare board version	$40
'EXP-1A' Fully populated kit	$80
'EXP-1B' Economy kit	$62
(add EXP-1R and EXP-1C later for a fully populated board)	
'EXP-1R' 5 volt/3 amp regulator kit(use with EXP-1B or EXP-1)	$7
'EXP-1C' Extra connectors(use with EXP-1B or EXP-1)	$11

RX-81 Parallel I/O board - 2 3/8" / 3" double sided/Plated thru holes/Parts list/documentation. For ZX80, ZX81, TS1000, TS1500 & TS2068. Versions available:

'RX-81' Bare board	$10
'RX-81A' Fully populated kit	$25
(Plugs into computer's rear expansion slot)	
'RX-81B' Fully populated kit, minus connector	$21
(Plugs into BUFFERED BUSS EXPANSION BOARD)	
'RX-81C' Demo/test kit	$4
(LED array and DIP switch for output and input demo/test)	

Order by alpha-numeric abbreviation (i.e. 'EXP 1B'). Postage & handling to U.S. and Canada included. Overseas add 10%. Send check or money order (U.S. dollars) allow check clearance time.

BUDGET ROBOTICS & COMPUTING, BOX 18616, TUCSON, AZ 85731

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"YOUR 2068 STORE"

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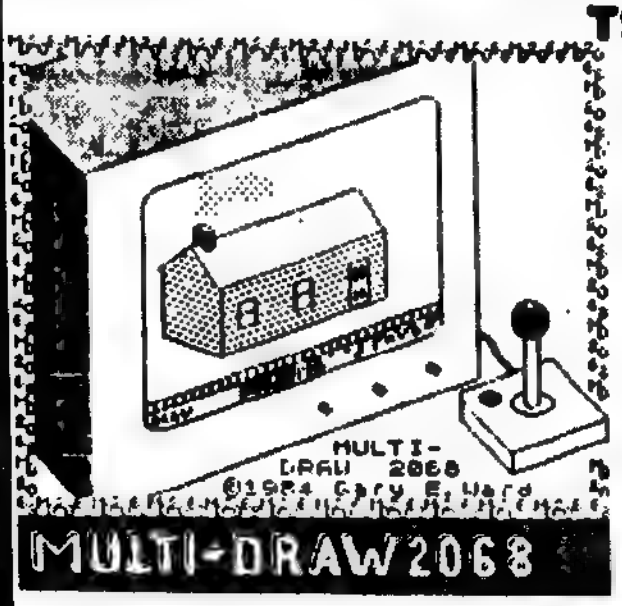
HARDWARE AND SOFTWARE FOR THE

TS 2068



The finest drawing program we've seen for the TS2068! This program allows you to draw on the screen with only the use of the joystick - change colors with the joystick -define characters with the joystick - turn on or off any pixel(s) at will and output to a TS2040 printer OR a full size printer (AERCO or TASMAN I/F). Magnify instantly. TOP SELLER - READ THE REVIEWS !! Now only $19.95

SUPER GAMES FROM (QUICKSILVA) "The Game Lords"

The following programs operate on the TS2068 without modifications (Spectrum ROM is not needed)

XADON (KB) - $19.95 THE SNOWMAN (JS) - $19.95

AQUAPLANE (JS) - $19.95 LASERZONE (JS) - $19.95

GRIDRUNNER (JS) - $19.95 TRAXX (JS) - $19.95

* JS=Joystick Control * KB=keyboard Control

For Complete descriptions of the above programs, see else where in this publication.

ALPHA-COM 32 PRINTER => $59.95

NOW FOR THE 2068

HOTTEST SOFTWARE GOING

FIGHTER PILOT

BY
D K MARSHALL

© DIGITAL Integration 1983

JOYSTICK CONTROLLED

REAL TIME F-15 EAGLE

FLIGHT SIMUALTOR

- AIR-TO-AIR COMBAT TRAINING

- AIR TO AIR COMBAT

- GUN CONTROL

- ACTUAL FLIGHT TRAINING

- FOUR AIRSTRIPS

$21.95 CASSETTE

$24.95 WAFER (for A&J)

*** WRITE FOR OUR FREE CATALOG *** MANY OTHER TS2068 ITEMS ***

Add $3.00 to total order for shipping and handling
Use mailing address above

KNIGHTED COMPUTERS
QUICKSILVA (C)

TRAXX from QUICKSILVA

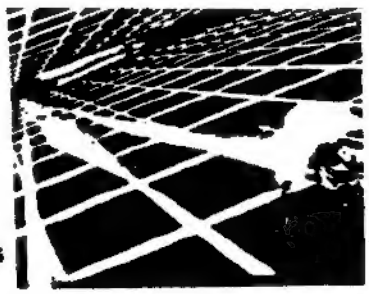
Another awesome game from the author of Gridrunner - Jeff Minter. Fast-Action !! Capture squares for points, if you can capture all four corners of the grid, you'll have 10 seconds to eat the bugs (pursuers). NINE SPEEDS TO CHOOSE FROM --- and UP TO 9 PURSUERS make for lots of high speed action and strategy. For one or two players.

==) ==) $ 19.95

THE SNOWMAN from QUICKSILVA

Fast moving graphics make this game truly exciting. Four stages of play. You must collect pieces of snow in order to build the snowman. Points are awarded for each piece of snow that is dropped into place You must avoid gas flames that tend to melt your snow, pick up flashing objects to get extra points, collect ice lollies to help keep your snow from melting and watch out for the Sleep Monsters - who'll put you to sleep at the most inconvienient times - and don't fall off those ledges! Much more - interesting and FUN. (FAST)
JOYSTICK CONTROL $19.95

GRIDRUNNER

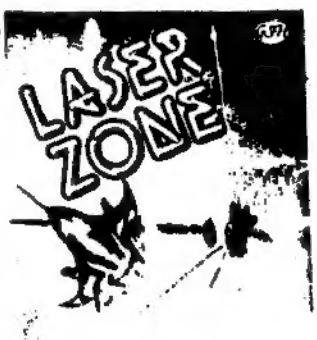


A devilishly fast arcade game that is not unlike Centepede. You control a combat ship, the GRIDRUNNER. Above you are the Gridsearch squads, caterpillar types who run in a line across each level of the grid and quickly descend to the next. If you knock off the caterpillar units one at a time and in order, you're OK, but if you split them in the middle, they become little independent units of destruction and are harder to destroy. EXCELLANT HIGH SPEED GRAPHICS--JOYSTICK CONTROL
$19.95

XADOM from QUICKSILVA

An arcade quality adventure game with fantastic 3D high resolution graphics. On screen features include and inventory, score and power guage interactive sword fights as well as traps, treasures, monster and wizards. Choose your own level of difficulty and speed. $ 19.95

LASERZONE



The next in the series of Spectrum conversions of Lianasoft's AWSOMEly fast zapping arcade games for the TS2068. You're in control of, the ZONE GUNNER. Faced with a choice between prolonged painful death at the hands of an enraged Liana or a rapid, glorious death wreathed in laser-fire in G-space, what could you do but represent your race in an awesome battle of skill and dexterity? One or two players, 30 levels of play...
JOYSTICK CONTROL ==)))))) $19.95

AQUAPLANE from QUICKSILVA

An unbelievable, original, fast moving graphics game that water-skiers (and non-waterskiers) will love. Ski through Marine Maniacs but beware of the rocks, the Regattas, the speed boats, and most especially the Great White Hungrys. The Ultimate in High Speed Graphics and a thrilling challange.
JOYSTICK CONTROL $19.95

DEALER INQUIRIES WELCOME

****
* ALL THE ABOVE PROGRAMS HAVE BEEN CONVERTED TO RUN ON *
* THE UNMODIFIED TS2068 COMPUTER - - - - *
* THE SPECTRUM ROM IS NOT NEEDED !!! *
****

AVAILABLE FROM: Curry Computer 5344 W. Baniff Ln. Glendale, AZ 85306
Knighted Computers 707 Highland St. Fulton, NY 13069
TEJ Computer Pdts 859 Virgil Ave Los Angeles, CA 90029
WHJ Data Systems 4 Butterfly Dr Hauppauge, NY 11788
Sunset Electronics 2254 Tarval St San Francisco CA 85030

SURGE BUSTERS

by OCEAN STATE PRODUCTS

Highly recommended for : personal computers, VCR's, TV's, stereos, electronic video games, etc.

These devices will limit all forms of power line surges and transients, such as those produced by lightning, switching surges and noise spikes, to safe levels for all sensitive electronic equipment.

* * * * * *

Surge Buster Power Strip :

6 outlets, circuit breaker, on/off switch, pilot light 6' cord, max. non-repetitive transient current = 4500 amps, max. energy = 53 joules. Also available is a unit with both surge suppression + noise (RFI) filtered. This unit has 4 outlets.

Surge only
Model # SBS-1 **$ 25.95**

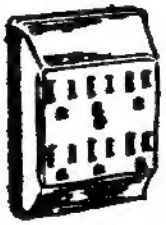
Surge + Noise
Model # SBS-2 **$ 42.95**

postpaid

* * * * * *

Surge Buster Wall Mount Unit :

6 outlets, plugs into existing wall duplex receptacle, max. non-repetitive transient current = 2500 amps, max. energy = 30 joules.



Model # SBW-1

$ 15.95

postpaid

OCEAN STATE PRODUCTS

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★ ONLY ★

$229.95

How much would you expect to pay for a dual 128K fast access storage system for your Timex 2068 that included Centronics and RS232 interfaces, Spectrum software and buss emulation, and free word processing software as standard?

Chances are it's a lot more than **$229.95**. But this is what will buy you the incredible **DAMCO/ROTRONICS** Wafadrive unit. (And if you already own an Omni-Emu Chameleon* the price is even less!)

* The Omni/Emu cartridge is required to operate the Wafadrive system. The Wafadrive will not operate by just changing the ROM to the Spectrum ROM or by using the ROM switch.

A fast reliable dual-drive storage system

Integrated System

The Wafadrive is a complete system which contains the micro interface, two 128K drives, RS232 and Centronics ports, all in one attractively-styled, compact unit. There is a minimum of connecting leads and no extra boxes to clutter the desk top. Like the majority of professional systems, the units are dual drive. This offers the optimum balance between system flexibility and cost. Built-in serial and parallel interfaces allow the direct connection of just about any popular printer.

Fast and Reliable

The Wafadrive achieves very fast loading and saving, but not at the expense of reliability. Extensive research and the use of high grade materials ensure that the Wafadrive will give years of dependable operation. Data integrity is on a par with floppy disk. The fully interchangeable wafers are available in three sizes–128K, 64K and 16K. Low capacity wafers give faster access. They are therefore most suitable for program development applications. The high capacity wafers are suitable for more general data storage. Loading rate is approximately 2K per second–almost twice as fast as similar products.

Software

Armed with the comprehensive user manual, blank wafer and word processor supplied, you can use your Wafadrive right away. There is also a rapidly growing range of software to enable the programmer and games player to exploit the Wafadrive system to the full.

Spectrum Emulation

The Wafadrive includes the Omni/Emu Cartridge. This enables the Timex 2068 to run thousands of Spectrum programs. The rear edge connection is compatible with Spectrum Hardware as well as allowing use of the 2040 printer.

Wafadrive for the Timex 2068 and the 16/48K Spectrum are available now. Versions for other popular home computers are under development.

Send a 20 cent stamp for a full color brochure and information on software and accessories.

DAMCO/ROTRONICS WAFADRIVE PRICE LIST

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___128K wafer	$3.99
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___Beer Belly/Wong's Loopy Laundry/ World Cup (48K: Artic)	$14.95
___Starbike (48K: Softek)	$12.95
___The Artist–graphic utility (48K:Softek)	$14.95
___ZAP machine code development package (48K:Hewson)	$25.95
___RS232 cable	$12.95
___Centronics (parallel) cable	$12.95
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POSTAGE: $5.00 for Wafadrives
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(S.U.N. Newsletter Nov/Dec 82)

For versatility this is even better than an EPROM...ranks quite high on the list of "must-haves"...
(SYNC Magazine Mar/Apr 83)

Provides the user with instant software...an extremely versatile memory extension...
(Z-WEST June 83)

INTRODUCTION

This memory board is designed to fill the transparent 8K block of memory (from 8K to 16K) in a ZX81-16K system. This area of memory is an ideal place to store, either permanently or temporarily, machine language routines or data which are to be used by the BASIC system.

Sample utilities are included with the kit.

The use of HM6116LP 2K CMOS RAM memory IC's with their own reserve power supply means that routines stored in the RAM are nonvolatile — the RAM retains its memory even when the ZX81 is switched off or reset. Moreover, being RAM, the routines you store in the memory are easily modified. The lithium cell supplied with the board will maintain sufficient reserve power for almost ten years.

ASSEMBLY

Complete step-by-step instructions in a 20 page manual make assembly of the board easy. The kit (pictured above) is complete with a silkscreened solder-masked printed circuit board, all capacitors, resistors, transistors, sockets, connectors, integrated circuits, and the lithium cell. The board is supplied with one 2K CMOS 6116LP-3 RAM — it will accomodate three more for a total of 8K.

Complete kit with one 2K 6116LP-3	$32.95
Additional three 6116LP-3	$15.00
Bare pc board & manual	$13.05
Kit for EPROM use only	$22.95
Assembled & tested with 2K	$47.95
Assembled & tested with 8K	$65.95
Shipping & handling per order	$ 1.95

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